

## MARCH 2010 DINNER MEETING

**PRESENTATION:** Can Site-Specific Seismic Studies Optimize Your Structural Design?  
**SPEAKER:** Dr. Sissy Nikolaou, PE, Mueser Rutledge Consulting Engineers  
**DATE:** Tuesday, March 16, 2010  
**LOCATION:** Radisson Valley Forge  
1160 First Avenue, King of Prussia, PA  
**TIME:** Dinner Meeting: 5:30 PM, Social Hour; 6:30 PM, Dinner; 7:15 PM, Presentation

The March, 2010 DVGI dinner meeting will feature Dr. Sissy Nikolaou, an Associate of Mueser Rutledge Consulting Engineers (MRCE), presenting *Can Site-Specific Seismic Studies Optimize your Structural Design?* A better understanding of this topic is essential for both practicing geotechnical and structural engineers alike. One professional development hour (PDH) will be provided for this dinner meeting. PDH's may not be combined with the short course instructed by Dr. Nikolaou earlier in the afternoon.

Seismic design parameters in codes are generic and as a result, conservative. The codes do include provisions for use of a site-specific seismic study to derive structural design parameters. Factors that can drive to the decision of a designer to perform such study include:

**Site Classification:** If the subsurface conditions indicate Site Class F, the codes require that a site-specific study be performed.

**Cost Optimization:** If the owner wants to reduce construction and analysis costs, a site-specific study can be performed to reduce dynamic loads and the Seismic Design Category (SDC).

**Analysis Methods:** The importance or the site conditions of the structure may require input parameters for the seismic analysis not covered in the Code.

Dr. Nikolaou will show the general procedure required for these studies, and how the results can optimize the structural design by not only providing site-appropriate reduced loads, but also by adjusting the Seismic Design Category classification, which affects design analyses and construction costs. Case histories of building and bridges from the Eastern Coast region, ranging from simple field testing to full-blown desk studies, will be used to examine the potential benefits of the studies in the unique seismotectonic and geologic conditions of the area. The speaker will share her experience with success, but also failure, in reducing the base shear and providing less stringent structural detailing in these examples. When successful, the cost of performing site specific seismic studies is minimal compared to the potential associated construction cost savings.

## AFTERNOON SHORT COURSE

**TOPIC:** Design Aspects of Geotechnical Earthquake Engineering  
**TIME:** Lunch: 12:00 p.m. to 1:00 p.m.  
Short Course 1:00 p.m. to 5:00 p.m.

Dr. Nikolaou will also be presenting a four-hour short course on *Design Aspects of Geotechnical Earthquake Engineering* in the afternoon. Lunch is included. Four professional development hours (PDH's) will be provided for this course completion, along with course notes. PDH's may not be combined with the dinner meeting. The topics to be covered in the short course include:

General Background: Seismicity in the Region; Response Spectrum  
Seismic Code Requirements for Geotechnical Reports  
Site Specific Seismic Analysis: Methods, Cost, Applicability  
Special Topics of Design Interest: Liquefaction, Soil Structure Interaction

# DELAWARE VALLEY GEO-INSTITUTE



Dr. Nikolaou has established and currently leads a department focused on Geotechnical Earthquake Engineering services at MRCE. These services include geophysical testing, site-specific seismic analyses, liquefaction hazard evaluation and mitigation, and seismic design of building and bridge foundations. Her recent projects include the Hillview Reservoir, WTC Freedom Tower, Queensboro Bridge, Columbia University's Manhattanville, JFK Light Rail, Germany's Brunsbuettel Nuclear Reactor, Mina Zayed in Abu Dhabi, and Woodrow Wilson Bridge in Washington DC. Dr. Nikolaou is a Professional Engineer licensed in NY State and Europe, and certified FEMA Urban Search-Rescue Structural Specialist. She has a 5-year Diploma in Civil Engineering from National Technical University of Athens and Master's, Ph.D. from SUNY-Buffalo. She is serving the engineering community by publishing extensively her work and being a member of several committees, including the recent NY Building Code, and the Board of Directors of ACEC-NY (American Council of Engineering Companies). She has received several awards recognizing her contributions, including the Prakash Award for Excellence in Geotechnical Engineering and a place among the Most Outstanding Women of the Builders' Council and the 40-under-40 Outstanding Leaders in the Building and Construction Industry.

Short course registration is limited to the first 75 people. The fee for the short course is \$125 per person if received prior to March 9, 2010. Thereafter, the fee is \$150 per person. We ask for all participants' cooperation in getting their fees in Bob's hands by March 14<sup>th</sup>. Seats may not be available for walk-ins.

To register for the events, please fax RSVP form to Mr. Bob Sabanas, P.E. at 610-280-6666 (Voice: 610-524-2300) by Tuesday, March 9, 2010. Send check, payable to DVGI, to Mr. Bob Sabanas, P.E., NTH Consultants, LTD, 444 Creamery Way, Suite 100, Exton, PA 19341. (\$10 dinner surcharge for registration after March 9).

Organization: \_\_\_\_\_

Telephone: \_\_\_\_\_ E-mail contact: \_\_\_\_\_

Number Attending Dinner Meeting: \_\_\_\_\_ x \$35.00 = \_\_\_\_\_

Student Attendees Dinner Meeting: \_\_\_\_\_ x \$10.00 = \_\_\_\_\_

Names of Dinner Attendees: \_\_\_\_\_

Number Attending Short Course: \_\_\_\_\_ x \$125.00 = \_\_\_\_\_

Names of Short Course Attendees: \_\_\_\_\_